(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
17 March 2005 (17.03.2005)

PCT

(10) International Publication Number
WO 2005/025096 A1

(51) International Patent Classification[7]: H04B 10/17, 10/213

(21) International Application Number:
PCT/EP2004/052127

(22) International Filing Date:
10 September 2004 (10.09.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
MI2003A001742
11 September 2003 (11.09.2003) IT

(71) Applicant *(for all designated States except US)*: **MARCONI COMMUNICATIONS SPA** [IT/IT]; Via Lodovico Calda 5, I-16153 Genova (IT).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **BOGONI, Antonella** [IT/IT]; Via Conciliazione, 61, I-45100 Montova (MN) (IT). **SACCHI, Giovanni** [IT/IT]; Viale Sarca 96, I-20125 Milano (IT). **D'ERRICO, Antonio** [IT/IT]; Via Legnano, 120, I- San Severo (FG) (IT). **DI PASQUALE, Fabrizio** [IT/IT]; P.le Martin Luther King 1c, I-56100 Pisa (IT).

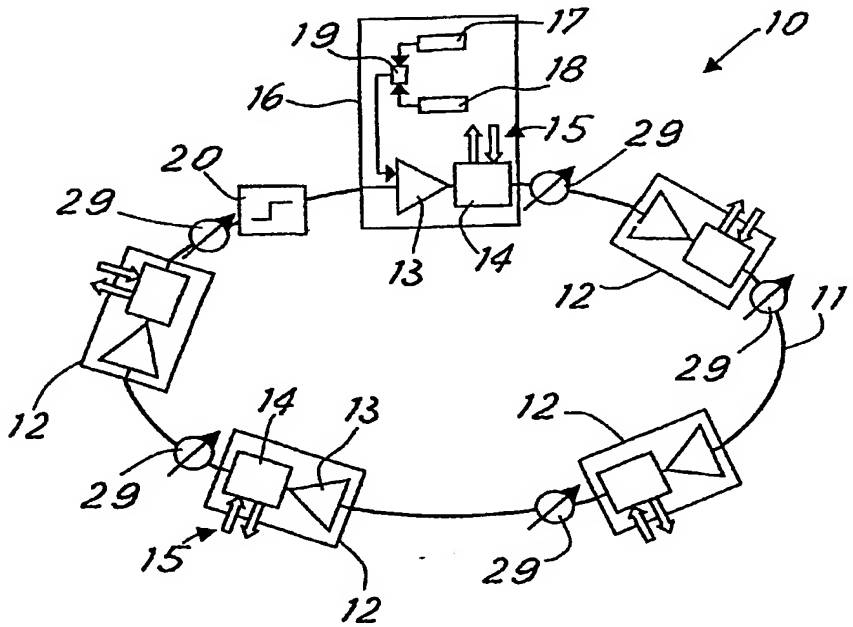
(74) Agents: **HOSTE, Colin** et al.; Marconi Intellectual Property, Crompton Close, Basildon Essex SS14 3BA (GB).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,

[Continued on next page]

(54) Title: LOOPED OPTICAL NETWORK WITH ASE LIGHT RECIRCULATION AND LINK AND NETWORK SURVIVABILITY CONTROL SYSTEM



(57) Abstract: A looped WDM optical network comprises an optical loop with optical amplifiers (12,16) between the sections of the loop (11) and with ASE recirculation in the loop. At a point of the loop a laser beam is injected and allowed to circulate in the loop with the laser beam being centered around a λ_{LINK} wavelength where it is desired that a lasing peak be generated. This supplies high network strength in terms of section loss variations and greatly improves the OSNR of the WDM signal. High network survivability is also achievable.

WO 2005/025096 A1

ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.